What is claimed is:

1   1.   A method for frequency conversion in a receiver,
2   comprising the steps of:
3   receiving a signal having a radio frequency and
4   carrying information on a plurality of channels;
5   selecting one of the channels;
6   converting the signal from the radio frequency to a
7   first variable frequency determined by the
8   selected channel; and
9   converting the signal from the first frequency to a
10   second frequency.

1   2.   The method as claimed in claim 1, wherein the
2   first frequency is determined so that noise coupled from the
3   other channels into the selected channel is minimized.

1   3.   The method as claimed in claim 1, wherein the
2   first frequency is higher than the radio frequency.

1   4. The method as claimed in claim 1, wherein the second
2   frequency is fixed for all the channels.

1   5.   The method as claimed in claim 1, wherein the
2   second frequency is a baseband frequency.

1   6.   The method as claimed in claim 1 further
2   comprising the step of:
3   converting the signal from the second frequency to a
4   third frequency.

1   7.   The method as claimed in claim 6, wherein the
2 first frequency is determined to minimize noise coupled from
3 the other channels into the selected channel.

1   8.   The method as claimed in claim 6, wherein the
2 first frequency is higher than the radio frequency.

1   9.   The method as claimed in claim 6, wherein the
2 second frequency is fixed for all the channels.

1   10.   The method as claimed in claim 6, wherein the
2 second frequency is lower than the first frequency.

1   11.   The method as claimed in claim 6, wherein the
2 third frequency is fixed for all the channels.

1   12.   The method as claimed in claim 6, wherein the
2 third frequency is a baseband frequency.

1   13.   A receiver comprising:
2 an antenna receiving an RF signal carrying information
3   on a plurality of channels;
4 a first local oscillator generating a first oscillating
5   signal having a first frequency;
6 a first mixer mixing the RF signal with the first
7   oscillating signal to generate an intermediate
8   signal;
9 a second local oscillator generating a second
10   oscillating signal having a second frequency; and
11 a second mixer mixing the intermediate signal with the
12   second oscillating signal to generate a baseband
13   signal;

14   wherein a frequency of the intermediate signal is
15   variable and determined by the selected channel.

1   14.   The receiver as claimed in claim 13, wherein the
2 frequency of the intermediate signal is determined so that
3 noise coupled from the other channels into the selected
4 channel is minimized.

1   15.   The receiver as claimed in claim 13, wherein the
2 first oscillator comprises:
3   a first frequency divider dividing a frequency FR of a
4   reference signal by a divisor N;
5   a phase frequency detector having a first input coupled
6   to an output of the first frequency divider;
7   a charge pump having an input coupled to an output of
8   the phase frequency detector;
9   a loop filter having an input coupled to an output of
10   the charge pump;
11   a voltage controlled oscillator having an input coupled
12   to an output of the loop filter;
13   a second frequency divider dividing a frequency of a
14   signal output from the voltage controlled
15   oscillator by a divisor P and outputting the
16   first oscillating signal; and
17   a frequency multiplier multiplying the first
18   oscillating signal by a multiplicator M and
19   having an output coupled to a second input of the
20   phase frequency detector.

1   16.   The receiver as claimed in claim 15, wherein the

2 divisors N and P, and the multiplicator M are determined by

3 the selected channel.

1   17.   The receiver as claimed in claim 13 further

2 comprising a low noise amplifier coupled between the antenna

3 and the first mixer to amplify the RF signal.

1   18.   The receiver as claimed in claim 13 further

2 comprises a SAW driver coupled to an output of the second

3 mixer.

1   19.   The receiver as claimed in claim 13, wherein the

2 first and second mixers are image rejection mixers.

1   20.   A receiver comprising:

2 an antenna receiving an RF signal carrying information

3   in a plurality of channels;

4 a first local oscillator generating a first oscillating

5   signal having a first frequency;

6 a first mixer mixing the RF signal with the first

7   oscillating signal to generate a first

8   intermediate signal;

9 a second local oscillator generating a second

10   oscillating signal having a second frequency;

11 a second mixer mixing the first intermediate signal

12   with the second oscillating signal to generate a

13   second intermediate signal;

14 a third local oscillator generating a third oscillating

15   signal having a third frequency; and

16   a third mixer mixing the second intermediate signal

17   with the third oscillating signal to generate a

18   baseband signal;

19   wherein a frequency of the first intermediate signal is

20   variable and determined by the selected channel.

1   21.   The receiver as claimed in claim 20, wherein the

2   frequency of the first intermediate signal is determined so

3   that noise coupled from the other channels into the selected

4   channel is minimized.

1   22.   The receiver as claimed in claim 20, wherein each

2   of the first and second oscillator comprises:

3   a first frequency divider dividing a frequency FR of a

4   reference signal by a divisor N;

5   a phase frequency detector having a first input coupled

6   to an output of the first frequency divider;

7   a charge pump having an input coupled to an output of

8   the phase frequency detector;

9   a loop filter having an input coupled to an output of

10   the charge pump;

11   a voltage controlled oscillator having an input coupled

12   to an output of the loop filter;

13   a second frequency divider dividing a frequency of a

14   signal output from the voltage controlled

15   oscillator by a divisor P and outputting the

16   first oscillating signal; and

17   a frequency multiplier multiplying the first

18   oscillating signal by a multiplicator M and

19   having an output coupled to a second input of the

20   phase frequency detector.

1   23.   The receiver as claimed in claim 22, wherein the

2 divisors N and P, and the multiplicator M are determined by

3 the selected channel.

1   24.   The receiver as claimed in claim 20 further

2 comprising a low noise amplifier coupled between the antenna

3 and the first mixer to amplify the RF signal.

1   25.   The receiver as claimed in claim 20 further

2 comprises a SAW driver coupled to an output of the third

3 mixer.

1   26.   The receiver as claimed in claim 20, wherein the

2 first, second and third mixers are image rejection mixers.